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EXAMINER

WASSUM, LUKE S

ART UNIT	PAPER NUMBER
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2167

DATE MAILED: 05/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/404,597

Applicant(s)

RAUSER ET AL.

Examiner

Luke S. Wassum

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 16-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 16-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
- Paper No(s)/Mail Date 20051219.

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The Applicants' amendment, filed 3 June 2004, has been received, entered into the record, and considered.

2. As a result of the amendment, claims 1, 4-8, 10-12, 16-24, 26, 28-30, 32, 35 and 36 have been amended, and new claim 38 has been added. Claims 13-15 have been previously cancelled. Claims 1-12 and 16-38 are pending in the application.

The Invention

3. The present invention is directed to a method of providing recommendations to a user, whereby in addition to information indicative of the user's interests, additional filtering criteria is applied in order to prevent the recommendation of items that, while strictly meeting the interest criteria of the user, are not appropriate for recommendation. Examples of reasons for such items being inappropriate are, for instance, items that are out of stock or otherwise currently unavailable; items which are out of season; or items which the age or other characteristics of the user renders inappropriate.

This is done through the use of constraint filters which are associated with a first set of attributes, and wherein said constraint filters are applied to those recommendation requests having the associated first set of attributes.

Information Disclosure Statement

4. The Applicants' Information Disclosure Statement, filed 19 December 2005, has been received and entered into the record.

5. The Information Disclosure Statement fails to comply with the provisions of MPEP § 609 for the following reasons:

Reference NPL50 is cited as the U.S. Provisional Application No. 60/155,437, but this is not the case. Since the submitted document is not labeled as to the correct application number, the reference has not been considered.

Furthermore, references NPL30 and NPL51 are both entire books. Since considering two entire books would be burdensome on the examiner, the Applicants are requested to cite the portions of the documents which are relevant to the instant application. These references have not been considered.

All other references cited on the submitted IDS has been considered by the examiner. See attached form PTO-1449.

Claim Objections

6. In view of the amendment to claim 35, the pending objection is withdrawn by the examiner.

7. Claim 29 is objected to because of the following informalities:

In the last limitation, '...for the item that pass...' should be '...for the item that passes...'.

Appropriate correction is required.

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8. Claims 30-34, incorporating the deficiency of their parent claim 29, are likewise objected to.

Claim Rejections - 35 USC § 112

9. In view of the amendments to claims 32, 36 and 37, the pending claim rejections under 35 U.S.C. § 112, first paragraph are withdrawn by the examiner.

Claim Rejections - 35 USC § 101

10. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

11. Claims 1-12 and 16-38 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

12. Regarding independent claims 1, 16, 29, 35 and 36, these claims are rejected as lacking a tangible result. For there to be a tangible result, there must be more than just a thought or a computation. Instead, the result must have real-world value rather than just being abstract.

For example, were there a step to display the recommendation list to the user, this would constitute a tangible result. Merely compiling a list of recommendations in the internal memory of a computer does not constitute a tangible result.

13. Claims 2-12, 17-28, 30-34, 37 and 38, fully incorporating the deficiencies of their respective parent claims, are likewise rejected.

Claim Rejections - 35 USC § 102

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

15. Claims 1, 2, 5-9, 12, 17, 29, 30, 33 and 35 are rejected under 35 U.S.C. 102(e) as being anticipated by **Aggarwal et al.** (U.S. Patent 6,487,539).

16. Regarding claim 1, **Aggarwal et al.** teaches a method for providing a recommendation list from a plurality of items as claimed, comprising the steps of:

- a) specifying an adaptable constraint filter to apply to recommendation requests having a first set of attributes, wherein the recommendation requests comprise requests from a plurality of users (see disclosure of 'certain rules corresponding to pre-specified domain knowledge', col. 4, lines 27-29 et seq.);
- b) receiving a recommendation request having the first set of attributes (see col. 4, lines 22-23 et seq.);
- c) selecting the ones of the plurality of items that satisfy the constraint filter associated with the recommendation request (see col. 3, lines 26-35; see also col. 4, lines 27-29 et seq.);

- d) computing a predicted value based on a recommendation filter, for each of the selected ones of the items (see col. 3, lines 26-35; see also col. 4, lines 23-26 et seq.); and
- e) appending the selected ones of the items meeting predetermined criteria to the recommendation list (see col. 3, lines 26-35; see also col. 4, lines 29-30 et seq.).

17. Regarding claim 29, **Aggarwal et al.** teaches a method of generating recommendation lists from a plurality of items having assigned category memberships representing attributes of the items as claimed, comprising:

- a) receiving a plurality of recommendation requests, wherein the recommendation requests comprise requests from a plurality of users (see col. 4, lines 22-23 et seq.);
- b) applying, for each recommendation request, a series of filters to each of the items, the series comprising a constraint filter and a recommendation filter for furnishing a predicted rating value, wherein the constraint filter is selected based on attributes associated with the recommendation request (see disclosure of 'certain rules corresponding to pre-specified domain knowledge', analogous to the claimed constraint filter, col. 4, lines 27-29 et seq.; see also disclosure of recommendation requests, col. 4, lines 22-23 et seq.); and
- c) generating, for each recommendation request, a recommendation list based on the predicted rating value for the item that pass the constraint filter and the recommendation filter (see col. 3, lines 26-35; see also col. 4, lines 29-30 et seq.).

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18. Regarding claim 35, **Aggarwal et al.** teaches a method of generating a recommendation from a plurality of items having assigned category memberships representing attributes of the items as claimed, comprising:

- a) building a constraint to apply to recommendation requests having a first set of attributes using constraint forming rules, wherein the recommendation requests include requests from a plurality of users (see disclosure of 'certain rules corresponding to pre-specified domain knowledge', col. 4, lines 27-29 et seq.; see also col. 4, lines 22-23 et seq.);
- b) incorporating the constraint into a constraint filter (see disclosure of 'certain rules corresponding to pre-specified domain knowledge', col. 4, lines 27-29 et seq.);
- c) receiving a recommendation request having the first set of attributes (see col. 4, lines 22-23 et seq.);
- d) applying a series of filters to each of the plurality of items in response to the recommendation request, the series comprising a recommendation filter for furnishing a predicted rating value and the constraint filter (see disclosure of 'certain rules corresponding to pre-specified domain knowledge', analogous to the claimed constraint filter, col. 4, lines 27-29 et seq.; see also disclosure of recommendation requests, col. 4, lines 22-23 et seq.); and
- e) generating a recommendation based on the predicted rating value or values for the item or items that pass the constraint filter and the recommendation filter (see col. 3, lines 26-35; see also col. 4, lines 29-30 et seq.).

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19. Regarding claims 2 and 17, **Aggarwal et al.** additionally teaches a method and apparatus wherein appending selected ones of the items further includes appending the selected ones of the items to the recommendation list when the predicted value exceeds a predetermined number (see col. 9, lines 44-47).

20. Regarding claim 5, **Aggarwal et al.** additionally teaches a method wherein selecting the ones of the items that satisfy the constraint filter further includes applying a constraint containing a bound expression (see disclosure of the format of domain specific rules, col. 6, line 65 through col. 7, line 36).

21. Regarding claim 6, **Aggarwal et al.** additionally teaches a method wherein selecting the ones of the items that satisfy the constraint filter further includes applying a constraint containing a Boolean expression (see disclosure of the format of domain specific rules, col. 6, line 65 through col. 7, line 36).

22. Regarding claim 7, **Aggarwal et al.** additionally teaches a method wherein selecting the ones of the items that satisfy the constraint filter further includes applying a constraint containing an equality expression (see disclosure of the format of domain specific rules, col. 6, line 65 through col. 7, line 36).

23. Regarding claim 8, **Aggarwal et al.** additionally teaches a method wherein selecting the ones of the items that satisfy the constraint filter further includes applying a constraint containing a

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category membership expression (see disclosure of the format of domain specific rules, including categories of clothing such as shirt and pant, col. 6, line 65 through col. 7, line 36).

24. Regarding claim 9, **Aggarwal et al.** additionally teaches a method wherein computing the predicted value further includes evaluating the selected ones of the items with collaborative filtering (see col. 3, lines 16-21).

25. Regarding claim 12, **Aggarwal et al.** additionally teaches a method wherein specifying the adaptable constraint filter further includes obtaining a constraint and storing the constraint in memory (this limitation rendered inherent by the disclosure of 'certain rules corresponding to pre-specified domain knowledge', analogous to the claimed constraint filter, col. 4, lines 27-29 et seq.).

26. Regarding claim 30, **Aggarwal et al.** additionally teaches a method further comprising building a constraint using constraint forming rules and incorporating the constraint into the constraint filter (this limitation rendered inherent by the disclosure of 'certain rules corresponding to pre-specified domain knowledge', analogous to the claimed constraint filter, col. 4, lines 27-29 et seq.).

27. Regarding claim 33, **Aggarwal et al.** additionally teaches a method wherein the recommendation generating step comprises generating a list of recommendations based on predicted rating values of the items that pass the constraint filter and the recommendation filter being in excess of a specified rating value (see col. 9, lines 44-47).

Claim Rejections - 35 USC § 103

28. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

29. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

30. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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31. Claims 16, 18, 20-24, 26-28, 36 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Aggarwal et al.** (U.S. Patent 6,487,539) in view of **Valentin et al.** (Canadian Patent 2,249,096).

32. Regarding claim 16, **Aggarwal et al.** teaches an apparatus for providing a recommendation list from a plurality of items in a data processing system substantially as claimed, comprising:

- a) a processing component configured to process instructions for selecting items from a plurality of items, wherein the processing component includes:
 - i) a constraint filter (see disclosure of 'certain rules corresponding to pre-specified domain knowledge', col. 4, lines 27-29 et seq.);
 - ii) a recommendation filter (see col. 4, lines 22-23 et seq.); and
- b) a recommender component configured to append the selected items to a recommendation list based on the constraint filter and the recommendation filter (see col. 3, lines 26-35; see also col. 4, lines 23-30 et seq.).

Aggarwal et al. does not explicitly teach an apparatus for providing a recommendation list wherein an order is determined for the constraint filter applying step and the recommendation filter applying step based on the cost of the filters.

Valentin et al., however, teaches an apparatus comprising the step of determining an order for applying two different filters based on the cost of the filters (see extensive discussion of the selection of the optimum query execution plan, page 2, line 13 through page 4, line 16, and

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particularly the recitation that different retrieval operations can be performed in different orders, page 3, lines 10-11 and page 4, lines 6-9).

It would have been obvious to one of ordinary skill in the art at the time of the invention to choose an access plan to optimize the query execution, since it is important to select a method for finding the data requested in a query which minimizes the computer and disk access time, and therefore optimizes the cost of performing the query (see page 2, lines 3-12).

33. Regarding claim 36, **Aggarwal et al.** teaches a method of generating a recommendation list from a plurality of items having assigned category memberships representing attributes of the items substantially as claimed, comprising:

- a) building a constraint using constraint forming rules (see disclosure of 'certain rules corresponding to pre-specified domain knowledge', col. 4, lines 27-29 et seq.);
- b) incorporating the constraint into a constraint filter (see col. 4, lines 27-29 et seq.);
- c) receiving a recommendation request (see col. 4, lines 22-23 et seq.);
- d) applying a series of filters to each of the plurality of items in response to the recommendation request, the series comprising the recommendation filter and the constraint filter (see col. 3, lines 26-35; see also col. 4, lines 23-30 et seq.); and
- e) generating a list of recommendations based on the predicted values for the items that pass the constraint filter and the recommendation filter (see col. 3, lines 26-35; see also col. 4, lines 23-30 et seq.).

Aggarwal et al. does not explicitly teach a method for providing a recommendation list comprising the step of determining an order for the constraint filter applying step and the recommendation filter applying step based on the cost of the filters.

Valentin et al., however, teaches a method comprising the step of determining an order for applying two different filters based on the cost of the filters (see extensive discussion of the selection of the optimum query execution plan, page 2, line 13 through page 4, line 16, and particularly the recitation that different retrieval operations can be performed in different orders, page 3, lines 10-11 and page 4, lines 6-9).

It would have been obvious to one of ordinary skill in the art at the time of the invention to choose an access plan to optimize the query execution, since it is important to select a method for finding the data requested in a query which minimizes the computer and disk access time, and therefore optimizes the cost of performing the query (see page 2, lines 3-12).

34. Regarding claim 18, **Aggarwal et al.** teaches an apparatus for providing a recommendation list substantially as claimed.

Aggarwal et al. does not explicitly teach an apparatus for providing a recommendation list comprising the step of determining an order of the filters to apply to the plurality of items based on the cost of the filters, wherein the constraint filter is applied first when the cost is lower, and applying the recommendation filter first when the cost is lower.

Valentin et al., however, teaches an apparatus for providing a recommendation list comprising the step of determining an order of the filters to apply to the plurality of items based on the cost of the filters, wherein the constraint filter is applied first when the cost is lower, and applying the recommendation filter first when the cost is lower (see extensive discussion of the selection of the optimum query execution plan, page 2, line 13 through page 4, line 16, and particularly the recitation that different retrieval operations can be performed in different orders, page 3, lines 10-11 and page 4, lines 6-9).

It would have been obvious to one of ordinary skill in the art at the time of the invention to choose an access plan to optimize the query execution, since it is important to select a method for finding the data requested in a query which minimizes the computer and disk access time, and therefore optimizes the cost of performing the query (see page 2, lines 3-12).

35. Regarding claim 20, **Aggarwal et al.** additionally teaches an apparatus wherein selecting the ones of the items that satisfy the constraint filter further includes applying a constraint containing a bound expression (see disclosure of the format of domain specific rules, col. 6, line 65 through col. 7, line 36).

36. Regarding claim 21, **Aggarwal et al.** additionally teaches an apparatus wherein selecting the ones of the items that satisfy the constraint filter further includes applying a constraint containing a Boolean expression (see disclosure of the format of domain specific rules, col. 6, line 65 through col. 7, line 36).

37. Regarding claim 22, **Aggarwal et al.** additionally teaches an apparatus wherein selecting the ones of the items that satisfy the constraint filter further includes applying a constraint containing a category membership expression (see disclosure of the format of domain specific rules, including categories of clothing such as shirt and pant, col. 6, line 65 through col. 7, line 36).

38. Regarding claim 23, **Aggarwal et al.** additionally teaches an apparatus wherein selecting the ones of the items that satisfy the constraint filter further includes applying a constraint containing an equality expression (see disclosure of the format of domain specific rules, col. 6, line 65 through col. 7, line 36).

39. Regarding claim 24, **Aggarwal et al.** additionally teaches an apparatus wherein computing the predicted value further includes evaluating the selected ones of the items with collaborative filtering (see col. 3, lines 16-21).

40. Regarding claims 26-28 and 38, **Aggarwal et al.** additionally teaches an apparatus wherein specifying the adaptable constraint filter further includes obtaining a constraint from a user and storing the constraint in memory (this limitation rendered inherent by the disclosure of 'certain rules corresponding to pre-specified domain knowledge', analogous to the claimed constraint filter, col. 4, lines 27-29 et seq.).

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41. Claims 3, 4, 10, 11 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Aggarwal et al.** (U.S. Patent 6,487,539) as applied to claims 1, 2, 5-9, 12, 17, 29, 30, 33 and 35 above, and further in view of **Breese et al.** (U.S. Patent 6,006,218).

42. Regarding claims 3, 10 and 34, **Aggarwal et al.** teaches a method for providing a recommendation list from a plurality of items substantially as claimed.

Aggarwal et al. does not explicitly teach a method wherein appending selected ones of the items further includes appending a predetermined number of items to the list and truncating the list when the predetermined number of the selected ones has been met.

Breese et al., however, teaches a method wherein appending selected ones of the items further includes appending a predetermined number of items to the list and truncating the list when the predetermined number of the selected ones has been met (see col. 2, lines 46-52; see also col. 7, lines 46-51).

It would have been obvious to one of ordinary skill in the art at the time of the invention to append a predetermined number of items to the list, since this would allow a user to see only some specified desired number of results, such that only the most relevant results are presented.

43. Regarding claims 4 and 11, **Aggarwal et al.** teaches a method for providing a recommendation list from a plurality of items substantially as claimed.

Aggarwal et al. does not explicitly teach a method wherein selecting the ones of the items that satisfy the constraint filter further includes obtaining data from a user to be used as a value for the free variable in the constraint and adding the data to the constraint filter, as well as applying a constraint filter containing free variables to the ones of the items

Breese et al., however, teaches a method for providing a recommendation list wherein selecting the ones of the items that satisfy the constraint filter further includes obtaining data from a user to be used as a value for the free variable in the constraint and adding the data to the constraint filter, as well as applying a constraint filter containing free variables to the ones of the items (see disclosure that input relating to the search to be performed is obtained via the user input device, thus constituting the claimed free variable, col. 8, lines 16-20).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate free variables into the constraint filters, since this would allow users to specify a specific value for an attribute at run-time, thus rendering the constraint filter more flexible than otherwise would be possible, the alternative being constructing a constraint filter for each possible value of an attribute.

44. Claims 19, 25 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Aggarwal et al.** (U.S. Patent 6,487,539) in view of **Valentin et al.** (Canadian Patent 2,249,096) as applied to claims 16, 18, 20-24, 26-28, 36 and 38 above, and further in view of **Breese et al.** (U.S. Patent 6,006,218).

45. Regarding claims 19 and 37, **Aggarwal et al.** teaches a method for providing a recommendation list from a plurality of items substantially as claimed.

Aggarwal et al. does not explicitly teach an apparatus wherein selecting the ones of the items that satisfy the constraint filter further includes obtaining data from a user to be used as a value for the free variable in the constraint and adding the data to the constraint filter, as well as applying a constraint filter containing free variables to the ones of the items

Breese et al., however, teaches an apparatus for providing a recommendation list wherein selecting the ones of the items that satisfy the constraint filter further includes obtaining data from a user to be used as a value for the free variable in the constraint and adding the data to the constraint filter, as well as applying a constraint filter containing free variables to the ones of the items (see disclosure that input relating to the search to be performed is obtained via the user input device, thus constituting the claimed free variable, col. 8, lines 16-20).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate free variables into the constraint filters, since this would allow users to specify a specific value for an attribute at run-time, thus rendering the constraint filter more flexible than otherwise would be possible, the alternative being constructing a constraint filter for each possible value of an attribute.

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46. Regarding claim 25, **Aggarwal et al.** teaches an apparatus for providing a recommendation list from a plurality of items substantially as claimed.

Aggarwal et al. does not explicitly teach an apparatus wherein appending selected ones of the items further includes appending a predetermined number of items to the list and truncating the list when the predetermined number of the selected ones has been met.

Breese et al., however, teaches an apparatus wherein appending selected ones of the items further includes appending a predetermined number of items to the list and truncating the list when the predetermined number of the selected ones has been met (see col. 2, lines 46-52; see also col. 7, lines 46-51).

It would have been obvious to one of ordinary skill in the art at the time of the invention to append a predetermined number of items to the list, since this would allow a user to see only some specified desired number of results, such that only the most relevant results are presented.

47. Claims 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Aggarwal et al.** (U.S. Patent 6,487,539) as applied to claims 1, 2, 5-9, 12, 17, 29, 30, 33 and 35 above, and further in view of **Valentin et al.** (Canadian Patent 2,249,096).

48. Regarding claims 31 and 32, **Aggarwal et al.** teaches a method for providing a recommendation list substantially as claimed.

Aggarwal et al. does not explicitly teach a method for providing a recommendation list comprising the step of determining an order of the filters to apply to the plurality of items based on the cost of the filters, wherein the constraint filter is applied first when the cost is lower, and applying the recommendation filter first when the cost is lower.

Valentin et al., however, teaches a method for providing a recommendation list comprising the step of determining an order of the filters to apply to the plurality of items based on the cost of the filters, wherein the constraint filter is applied first when the cost is lower, and applying the recommendation filter first when the cost is lower (see extensive discussion of the selection of the optimum query execution plan, page 2, line 13 through page 4, line 16, and particularly the recitation that different retrieval operations can be performed in different orders, page 3, lines 10-11 and page 4, lines 6-9).

It would have been obvious to one of ordinary skill in the art at the time of the invention to choose an access plan to optimize the query execution, since it is important to select a method for finding the data requested in a query which minimizes the computer and disk access time, and therefore optimizes the cost of performing the query (see page 2, lines 3-12).

Response to Arguments

49. Applicant's arguments filed 3 June 2004 have been fully considered but they are not persuasive.

50. Regarding the Applicants' argument that the **Valentin et al.** reference fails to disclose the claimed limitation of determining whether to apply the recommendation filter or the constraint filter first, based upon the cost, the examiner respectfully disagrees.

The **Valentin et al.** reference discloses that

requested information in the tables on the disk drives. There
are many ways in which a query can be processed and each
5 consumes a different amount of processor and input/output
access time. The method in which the query is processed, i.e.
query execution plan, affects the overall time for retrieving
the data. The time taken to retrieve data can be critical to
the operation of the database. It is therefore important to
10 select a method for finding the data requested in a query
which minimizes the computer and disk access time, and
therefore, optimizing the cost of doing the query.

(see page 2, lines 3-12, disclosing the execution of a query through the optimization of a query plan); and also that

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5 execution cost. In order to determine a query execution plan with the lowest execution cost, the query optimizer uses specific combinations of operations to collect and retrieve the desired data. When a query execution plan is finally selected and executed, the data requested by the user is retrieved according to that specific query execution plan however manipulated or rearranged.

10 In a SQL based RDBMS the query execution plan comprises a set of primitive operations or commands, e.g. JOIN; a sequence in which the retrieve operations will be executed, e.g. JOIN ORDER; a specific method for performing the operation, e.g. SORT-MERGE JOIN; or an access method to obtain records from the base relations, e.g. INDEX SCAN. In most database systems, particularly large institutional
15 systems, a cost-based query optimizer will be utilized. A cost-based query optimizer uses estimates of I/O and CPU resource consumption in determining the most efficient query execution plan because both I/O and CPU resource consumption depend on the number of rows that need to be processed.

(see page 3, lines 1-19, disclosing that one method of optimizing the query plan is through the optimization of the order in which retrieve operations are executed).

The reference clearly teaches the reordering of retrieval operations based on the lowest cost (i.e., optimizing the execution plan for a query or series of queries).

Conclusion

51. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Schafer et al. ("Recommender Systems in E-Commerce") teaches a taxonomy for recommender systems, including the interfaces they present to customers, the technologies used to create the recommendations, and the inputs they need from customers.

Schafer et al. ("Meta-Recommendation Systems: User-Controlled Integration of Diverse Recommendations") teaches a meta-recommendation system in the domain of movies.

Stolze ("Domain-Oriented Recommender Applications: A Framework for Intimate Recommending") teaches a domain-oriented recommender application as a framework that can guide designers of online shops in creating recommender systems that have a more intimate knowledge of customers and their evolving areas of interest.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luke S. Wassum whose telephone number is 571-272-4119. The examiner can normally be reached on Monday-Friday 8:30-5:30, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Cottingham can be reached on 571-272-7079. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

In addition, INFORMAL or DRAFT communications may be faxed directly to the examiner at 571-273-4119. Such communications must be clearly marked as INFORMAL, DRAFT or UNOFFICIAL.

Customer Service for Tech Center 2100 can be reached during regular business hours at (571) 272-2100, or fax (571) 273-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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lsw
16 May 2006